Department of Energy

Idaho Operations Office
850 Energy Drive
Idaho Falls, Idaho 83401-1563

April 26, 2002

Mr. Monte Wilson, Interim Chair
INEEL Citizens Advisory Board
c/o Wendy Green Lowe
Jason Associates Corporation
477 Shoup Avenue, Suite 205
Idaho Falls, Idaho 83402

REFERENCE: Letter, S. Hobson to K. E. Hain, "Recommendation #92 – Proposed Plan for Operable Unit 10-04: Waste Area Groups 6 and 10," dated March 20, 2002 (02-CAB-031)

SUBJECT: INEEL - WAGs 6 and 10 - Operable Unit 10-04 – Response to INEEL Citizens Advisory Board Submittal of "Recommendation #92" (EM-ER-02-057)

Dear INEEL Citizens Advisory Board:

Thank you for providing your Recommendation #92 to the Department of Energy.

The recommendation was received on March 28, 2002, and we very much appreciate the Board's critical review of our proposed action. We expect that it will have considerable impact upon the content and priorities contained in the "OU 10-04 Miscellaneous Sites Record of Decision (ROD) (DOE/ID-10980)," when finalized.

Our current draft ROD remains a work in progress. We still believe that the remedial investigation and baseline risk assessment study did reveal potential future risks that need to be addressed. We agree, however, with CAB reviewers that some of the risks identified do not warrant cleanup action in the near future. Our dilemma is how to prioritize the proposed cleanup actions so that:

(1) We are not wasting resources on potential future problems to the detriment of current higher priority needs; and

(2) We remain flexible to institute necessary cleanup if INEEL land use circumstances change. This prioritization and contingency approach will not be contained in the draft Record of Decision the Agencies will be reviewing in May 2002. We expect to work through this process during the prescribed comment and resolution period, which will occur through this summer. As you may recall, each of the source areas have different levels of contamination and present somewhat different current and future risks. We will keep the board informed as we develop procedures and requirements upon which to best prioritize these source areas to ensure a "worst first" approach.

Specific responses to your recommendation, reviewed and approved by the IDEQ, the EPA and the DOE are provided in the enclosure.

Again we appreciate the Board's thoughtful input and your dedication to helping chart a cost-effective direction for INEEL.

If you have any questions concerning this letter, please call either Glenn Nelson at (208) 526-0077 or Kathleen Hain at (208) 526-4392.

Sincerely,

Dean Nygard, Site Remediation Manager
Idaho Department of Environmental Quality

Wayne Pierre, Team Leader
Environmental Cleanup Office
U. S. Environmental Protection Agency

Kathleen Hain, Manager
Environmental Restoration Program
U. S. Department of Energy – Idaho Operations Office

Enclosure

cc: w/ encl: R. Poeton, EPA, Region 10, (M/S ECL-113)
G. Winter, IDEQ-Boise, Technical Services (Geosciences)

Enclosure
CAB Comments

The Idaho National Engineering and Environmental Laboratory (INEEL) Citizens Advisory Board (CAB) has reviewed the Proposed Plan for Operable Unit 6-05/10-04: Waste Area Group (WAG)'s 6 and 10.

[a] The document, prepared by the Department of Energy's Idaho Operations Office (DOE-ID) in coordination with its regulators, the State of Idaho and Region X of the U.S. Environmental Protection Agency, is formatted nicely, user-friendly, and easy to understand.

The CAB's overall impression of the Proposed Plan for WAGs 6 and 10 is perhaps driven by the recent release of the Top-to-Bottom Review and its criticism of DOE-ID for doing too little in recent years to reduce risks to human health, safety, and the environment for major projects. We question why DOE is eager to move forward with remediation for WAGs 6 and 10, because they do not pose the most urgent risks at the INEEL.

In addition, we had understood that WAG 10 was established to address contamination that does not fall within the boundaries of any other WAG, residual contamination that remains after completion of any single remedial action, and the Snake Rive Plain Aquifer. We also understand that the Proposed Plan for Operable Unit 10-08 will address groundwater and site-wide institutional controls.

Our review of the risks associated with the two WAGs leads us to conclude that a delayed cleanup decision at WAGs 6 and 10 would be acceptable if it allowed cleanup funding to be spent to reduce more urgent risks. **The INEEL CAB recommends that the DOE-ID, the State of Idaho, and the Environmental Protection Agency consider changes in the schedule for remediation of WAGs 6 and 10 until Records of Decision for all other WAGs have been signed and more urgent risks have been fully addressed.**

When DOE decides to move forward with cleanup in WAGs 6 and 10, we suggest consideration of the following comments.

[b] The explanation of risks associated with the TNT/RDX Contamination Sites does not address any risks that would be posed by a possible explosion. When the INEEL CAB inquired about the risk of an explosion, we were told that the unexploded ordnance sites had not been characterized well enough to estimate the risk of an explosion, and that there are too many uncertainties in the data that is currently available to estimate the probability of an explosion or the possible effects of a detonation. We cannot imagine moving ahead without a better understanding of this issue. **The INEEL CAB recommends that DOE-ID conduct additional characterization to describe 1) the potential for an explosion, 2) measures that would be taken to protect worker and public safety, and 3) the health effects and environmental impacts in the event of an explosion, before moving forward with a decision.**

[c] In addition, the description of the remedial alternatives for the TNT/RDX Contamination Sites states that the explosive materials at the TNT/RDX sites would be removed by hand. Based on responses that the INEEL CAB received to our questions, we now know that the phase "removed by hand" means that typical excavation machinery would not be used. What

measures would be taken to protect the workers involved in this excavation from exposure to the contamination and from a possible unintended detonation?

[d] Some of the cost estimates are unclear. For example, it is unclear in the Proposed Plan why the costs of Alternative 3 would be much higher than for Alternative 2 for ordnance areas. DOE-ID was able to provide more detailed explanations upon questioning. **The INEEL CAB recommends that the Record of Decision be based on solid cost estimates.**

[e] We question why Alternative 3a "on-site disposal" would be preferred over Alternative 3b "off-site disposal" for the excavation material from the TNT/RDX Contamination Areas. If the costs of the two alternatives are basically the same (given the error factors associated with cost estimates), it makes no sense to prefer on-site (over a sole source aquifer and requiring continuing monitoring) to off-site disposal. The minimal additional cost appears justified. **The INEEL CAB recommends that DOE-ID and its regulators select Alternative 3b instead of Alternative 3a, as it is more protective to the aquifer.**

[f] We wonder how long institutional controls will be needed at those sites that require no remediation. Table 9 lists sites requiring institutional controls and 5-year reviews, but no remediation. **The INEEL CAB recommends that the Record of Decision include predicted timeframes for when the risks associated with these sites would diminish sufficiently to allow removal of institutional controls.**

[g] The INEEL CAB is curious why DOE concluded that excavation is needed in the gun range? The risks associated with the gun range do not appear to pose sufficient concern as to justify the cost of excavation. Why would the entire berm need to be removed, as the debris is likely only in half the berm? We are mindful of the costs associated with construction, operation, maintenance, and surveillance of the INEEL Comprehensive Environmental Response, Compensation, and Liability Act Disposal Facility. Additional site characterization might prove that excavation of the back half of the berms is not necessary. **The INEEL CAB recommends that the Record of Decision clearly explain why such a costly remediation would be necessary if DOE decides to move forward with this approach.**

Enclosure
Responses

Response [General] First, we would like to thank the CAB and express our appreciation for their hard work in evaluating this proposed action. Our comments below represent a partial response to the Board's comments. A more detailed response will be contained in our Responsiveness Summary, which will accompany the Record of Decision (ROD) when issued.

Response [a] Thank you for the comment on formatting and ease of understanding the document. In response to this comment and similar comments received from other members of the public, DOE-ID, the State of Idaho, and EPA are evaluating the prioritization of cleanup at the INEEL and utilizing a phased approach for remediation activities whereby the sites posing the greatest risk will be addressed first. Under the assumption that the federal government will maintain control of the site until at least 2095, remediation activities can be phased during this extended period. Such phasing can result in overall cost savings. Therefore, we are evaluating a phased approach to remediation of the OU 6-05/10-04 source areas. Many of the sites are a risk if land use assumptions change. For these source areas, Institutional Controls may be fully adequate in the near term. Other sites, which may present a worker risk or impede facility siting on INEEL, will likely require a higher priority.

[b] The earlier response to the CAB concerns about the TNT/RDX Contamination Sites and the risks associated with the possibility of an explosion addressed **both** types of contamination potentially encountered at these sites. The risk of explosion from Unexploded Ordnance (UXO) found within these sites is where the lack of characterization and uncertainty lies. Up until now only small areas have been surveyed for UXO and remediated (i.e., during previous cleanup efforts). Data gaps were to be resolved by the selected remedy developed for the UXO Areas.

The risk of explosion from TNT and RDX chunks is limited by the availability of an ignition source, such as pressure or an explosion (ignitability), and the chunk's ability to react (i.e., its reactivity). These explosive materials are considered a secondary high explosive and generally need a booster to cause detonation. They are typically insensitive to shock, heat or friction (http://www.bu.edu/ehs/programs/labsafe/soprct.pdf). TNT and RDX chunks were left behind from explosive testing and ordnance disposal during and after World War II. These explosive materials have remained undisturbed over several years and physical characteristics indicate that these materials are not likely to explode under the current INEEL use restrictions. We will review as part of the ROD whether specific institutional controls are necessary as a further safeguard to workers and site visitors. Also, prior to remediation of these sites, workers would be provided with sufficient training and understanding of safety precautions required for this type of contamination (TNT/RDX), together with the necessary equipment that would be required for remediation. Remediations of this sort are not new. Protocols are available to aid with the development of a Heath and Safety Plan for these sites and to aid us in managing these wastes safely. This subject will be discussed further in the draft final ROD.

[c] As we stated above, prior to implementing any remedy, which will be described in the ROD, we will develop a Health and Safety Plan as part of our remedial design and remedial action work plan process. Complying with the Health and Safety Plan will ensure worker safety during ordnance removal operations.

[d] We apologize for the confusion concerning the cost estimates for Alternatives 2 and 3. While the cost estimates were based on sound assumptions, there is one assumption with high

uncertainty. That assumption concerns the amount of UXO that exists on the INEEL that would require removal. A reliable estimate of UXO to be removed cannot be made until a UXO survey over the Naval Gun Range and bombing ranges is completed. We will clarify our cost assumptions in the draft final ROD. Further, these cost estimates will be re-evaluated due to our plan to develop a phased approach with the resultant change in the cleanup schedule.

[e] The cost estimates for on- and off-site disposal will be similar only if the total volume of soil removed to meet remediation goals is relatively small. Based on current data, we estimate that only 800 cubic yards of soil will require disposal. However, if the volume of soil removed during remediation greatly exceeds 800 cubic yards, then the cost for off-site disposal would be significantly greater. Due to concerns raised during the public comment period, the cost for disposing the TNT/RDX soil off-site will be evaluated when a more accurate volume of soil to be removed can be calculated. If the cost of off-site disposal does not exceed 5% of the cost for on-site disposal, then the off-site disposal option will be considered. Further discussion on the basis for remedy selection will be available in the draft final ROD which will be modified to adjust to this new phased/contingency approach.

[f] Table 9 from the OU 6-05 and 10-04 Proposed Plan lists seven sites that require institutional controls and 5-year reviews. Two of these sites (BORAX-02 and BORAX-09) have undergone remedial actions, which included the placement of an engineered cap above, and entombment of, the contamination. The entombed materials contain long-lived radionuclides and these sites will require long-term institutional controls to prevent unauthorized intrusion into the remedial barrier.

BORAX-01, BORAX-08, EBR-08, and OMRE-01 have undergone remedial actions that included the removal of contaminated soil. However, residual contamination (primarily radionuclides) limits the site from free release. These four sites will remain under institutional controls until an unacceptable risk no longer remains based on a 5-year review.

A large amount of uncertainty remains with the chemical properties of the explosive materials buried at ORD-21 (Juniper Mine). Therefore, it is difficult to predict the time period for which institutional controls will be required at this site.

Because of the nature of some of these sites it is difficult to predict a specific timeframe in which risks associated with these sites would diminish sufficiently to allow removal of institutional controls.

[g] Remedial action is needed to remove the lead fragments and lead-contaminated soil from all areas impacted by the firing activities, which includes the berms, surrounding soil, and pond. Based on records of the number and types of cartridges purchased for use at the Gun Range, it is estimated that the site contains 64 tons of lead. Concentrations of lead detected in the soil are as high as 24,400 mg/kg and lead contamination has been detected to a depth of two feet. The machinery typically used to excavate and process contaminated soils from small arms firing ranges, such as STF-02, is capable of moving and processing very large volumes of material. Also, it is impractical to only remove only the front face and top half of the berms as this would only result in spreading contamination to other portions of the remaining soil.